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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/567,535	10/03/2006	Huachang Lu	514572001900	9330

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EXAMINER	
DO, PENSEE T	

ART UNIT	PAPER NUMBER
1641	

MAIL DATE	DELIVERY MODE
03/24/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/567,535	LU ET AL.	
	Examiner	Art Unit	
	Pensee T. Do	1641	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 December 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-56* is/are pending in the application.

4a) Of the above claim(s) *1-34 and 48-56* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *35-47* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☒ Claim(s) *1-56* are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Priority

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

This application 10567535, PG Pub. No. 20070059705 filed 10/03/2006 is a national stage entry of PCT/CN03/00666 , International Filing Date: 08/13/2003 claims foreign priority to 031153215.2 , filed 08/08/2003.

Amendment Entry & Claims Status

The amendment file don December 18, 2009 has been acknowledged and considered.

Claims 1-56 are pending. Claims 1-34, 48-56 are withdrawn from further consideration.

Claims 35-47 are being examined.

Terminal Disclaimer

The Terminal Disclaimers filed on December 18, 2009 have been entered and reviewed. However, they are NOT approved because the signature is not of the attorney of record.

Claimed Invention

35. A process of preparing a nanoparticle comprising a magnetic particle coated with a phosphor fluoride, which process comprises:

a) dispersing a nanometer-sized magnetic particle and an aqueous fluoride-containing compound in de-ionized water,

b) contacting the mixture of step a) with an aqueous solution containing soluble salts of a phosphor host, an absorber/emitter pair, and a rare-earth metal chelator by stirring for a sufficient time to allow formation of a phosphor fluoride precipitate which forms a coating around the magnetic particle; and

e) heating the magnetic particle with the phosphor fluoride coating of step b) at a temperature ranging from about 300°C to about 450°C for a period of time ranging from about 1 hour to about 10 hours to obtain the phosphor fluoride coated magnetic particle that emits light in the visible wavelength range when excited by long wavelength light.

Maintained Rejection

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 35-47 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-11 of U.S. Patent No. 7,422,703 in view of Zarling et al. (US 6,537, 829) and Miyazono et al. (US 5,759,435).

Patent '703 claims a process of preparing a phosphor fluoride particle comprising preparing an aqueous solution of soluble salts of a phosphor host, an absorber/emitter pair and a rare-earth metal chelator and contacting said prepared solution with an aqueous fluoride containing compound at a temperature ranging from 0 to 100 degree Celsius for a sufficient time to obtain a precipitate and heating said precipitate at a temperature ranging from 300 to 450 degrees Celsius to obtain a phosphor fluoride particle that emits light in the visible wavelength range when excited by long wavelength light that has a uniform particle size of less than 350 nanometers.

However, Patent ‘703 fails to claim dispersing nanometer-sized magnetic particles in the aqueous fluoride containing compound in de-ionized water before adding to the prepared solution of phosphor host, an absorber/emitter pair and rare earth metal chelator. Patent ‘703 also fails to claim that the particle can be modified with functional groups such as –COOH, -CHO, -NH2, -SH, -S-S, etc.

Zarling teaches incorporate a phosphor compound comprising fluoride, emitter/absorber pair and a phosphor host into magnetic particles for use in assay (see col. 11, lines 3-5). Zarling teaches functionalizing the phosphor particle with functional group such as carboxylate group or amine group (see col. 22, lines 50-58; col. 13, lines 20-25).

Miyazono teaches a method of producing magnetic particles coated with fluoride compound to obtain magnetic particles having moisture resistance, as well as a small specific surface area and low oil absorption for excellent dispersibility. (see col. 6, lines 43-51). Miyazono teaches that the magnetic particles mixed with fluoride-derived compound followed by heat treatment in a non-oxidizing gas (see col. 7, lines 40-42). The fluoride-derived compounds are NH4F, KHF2, NaHF2 (hydrogen fluoride which are aqueous). (see col. 7, lines 44-47). The heat treatment is between 200 and 700 degrees Celsius. (see col. 7, lines 56-57).

It would have been obvious to one of ordinary skills in the art to incorporate phosphor compound produced by the method of Patent '703 into magnetic beads as taught by Zarling by modifying the method of patent '703 using the teaching of Miyazono which is to coat magnetic particles with a fluoride-derived compound to increase the dispersibility of the magnetic particles. Regarding dispersing the magnetic particles in de-ionized water by sonication, it is well known in the art that de-ionized water is purified water and thus would not interfere with the coating fluoride onto the magnetic particles. Sonication is a well known method to aid in mixing a solution. Regarding claims 39 and 40, it would have been obvious to one of ordinary skills to modify the particle produced by the method of Patent '703 in combination with Zarling and Miyazono with a functional group as taught by Zarling so that antibodies or proteins can be covalently attached to the particles for use in assay.

Remarks

Claims 35-47 are free of prior arts as now recited because the prior arts fail to teach a method of producing magnetic particles coated with phosphor fluoride comprising preparing an aqueous solution of soluble salts of a phosphor host, an absorber/emitter pair and a rare-earth metal chelator and contacting said prepared solution with an aqueous fluoride containing compound at a temperature ranging from 0 to 100 degree Celsius for a sufficient time to obtain a precipitate and heating said precipitate at a temperature ranging from 300 to 450 degrees Celsius to obtain a phosphor fluoride particle that emits light in the visible wavelength range when excited by long wavelength light that has a uniform particle size of less than 350 nanometers.

Zarling (US 6,537,829) teaches a phosphor particle label for use in assay comprising phosphor host, emitter/absorber pair and fluoride but fails to teach a method of producing such compound. Zarling discloses that conventional methods can be used to produce this phosphor particle. Zarling incorporated several references that teach a method of producing phosphor particle on col. 17, lines 10-30. However, after reviewing several of these references, most of them do not teach the same temperature range of 300-450 degrees Celsius as claimed.

Kane (5,891,361) discloses a method of forming an up-converting phosphor particle by mixing a phosphor host, absorber/emitter pair and a fluoride compound and heating such solution at temperatures from 750-800 degrees Celsius. (see col. 3, line 1-40). The temperature in Kane is out of range from the claimed temperature range (300-450 degrees C) and Kane also fails to teach a rare-earth metal chelator.

Response to Arguments

Applicant's arguments filed December 18, 2009 have been fully considered but they are not persuasive.

Applicants have filed two terminal disclaimers to overcome the obviousness-type double patenting rejections. However, these terminal disclaimers are not approved because the signature is not of the attorney of record.

Please re-submit new Terminal Disclaimers.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Pensee T. Do whose telephone number is 571-272-0819. The examiner can normally be reached on Monday-Friday, 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Shibuya can be reached on 571-272-0806. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Pensee T. Do/
Examiner, Art Unit 1641

/Jacob Cheu/
Primary Examiner, Art Unit 1641